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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,974	06/28/2006	Walter Doll	22409-00158-US	5879
30678 7590 06/09/2010 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20006				
EXAMINER ZHANG, JUE				
ART UNIT 2838		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/552,974

Applicant(s)

DOLL ET AL.

Examiner

JUE ZHANG

Art Unit

2838

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/12/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5-11, 14, 15, 19, 22, 23, 25-34, 36, 38-51, 53-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-9, 19, 22-23, 25-27, 34, 36, 38-42, 53 and 54 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 14, 15, 28-33 and 43-51 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/12/2010
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office action is in answer to the response filed on 3/12/2010. Claims 1, 3-11, 14-15, 19, 21-23, 25-34, 36-54 are pending, of which claims 1, 3, 5-7, 19, 22, 23, 25-28, 32- 34, 36, 38-40, 47, 50, 51, 53 and 54 are amended, and claims 4, 21, 37, and 52 are cancelled by the present amendment.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/6/2009 has been entered.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 03/12/2010 was filed after the mailing date of the final Office action on 11/12/2009. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5-7, 22, 25-27, 34, 38-40, 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Single (AU200176077, hereinafter '077).

Claim 1, '077 teaches an implantable hearing prosthesis (e.g., see Fig. 1-3) comprising:

an output circuit (e.g., 20, Fig. 1); and

a power management system (e.g., see lines 22-33 of page 17; Fig. 3)

configured to supply power to the output circuit comprising:

a plurality of rechargeable batteries (e.g., see lines 24-26 of page 9; lines 9-13, 17-18 of page 18; Fig. 3);

first conversion means for converting a supply voltage to a battery voltage (e.g., the battery charging means for charging the selected battery, see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3); and

switch means (e.g., see line 30 of page 9 to line 5 of page 8; lines Fig. 3) for selectively connecting a desired one of the plurality of rechargeable batteries to the first conversion means for charging of the desired one of the batteries (e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3) and

for selectively connecting a selected one of the plurality of batteries to the output circuit to enable the selected one or more of the batteries to be discharged through the output circuit (e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3).

Claim 25. '077 teaches a method of managing the supply of power to an output circuit of an implantable hearing prosthesis (e.g., see Fig. 1-3) comprising a plurality of rechargeable batteries, the method comprising the steps of:

converting, with an input voltage converter circuit, a supply voltage to a battery voltage (e.g., the battery charging means for charging the selected battery, see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3);

selectively connecting, using a switch matrix (e.g., see line 30 of page 9 to line 5 of page 8; lines Fig. 3), a desired one of the plurality of rechargeable batteries to the input voltage converter circuit to charge the desired one of the plurality of batteries (e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3); and

connecting a selected one of the plurality of rechargeable batteries, using the switch means matrix, to the output circuit to enable the selected one of the batteries to be discharged through the output circuit (e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3).

Claim 34, '077 teaches an implantable hearing prosthesis (e.g., see Fig. 1-3) comprising:

an output circuit (e.g., 20, Fig. 1); and

a power management system (e.g., see lines 22-33 of page 17; Fig. 3)
configured to supply power to the output circuit comprising:

a plurality of rechargeable batteries (e.g., see lines 24-26 of page 9; lines 9-13, 17-18 of page 18; Fig. 3);

an input voltage converter circuit configured to convert a supply voltage to a battery voltage (e.g., the battery charging means for charging the selected battery, see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3); and

a switch matrix (e.g., see line 30 of page 9 to line 5 of page 8; lines Fig. 3) configured to selectively connect a desired one of the plurality of rechargeable batteries to the input voltage converter circuit for charging of the desired one of the batteries (e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3) and to selectively connect a selected one of the plurality of batteries to the output circuit to enable the selected one of the batteries to be discharged through the output circuit (e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3).

Claims 5, 26, 38, '935 teaches the limitation of claims 1 and 34 as discussed above.

'077 teaches the limitations of claims 1, 34 as discussed above. '077 further teaches that wherein the first conversion means is also connected between the output circuit and the switch means for converting the voltage of the selected one of the batteries to a voltage for use by the output circuit (e.g., see lines 1-8, 18-28, page 12; lines 2-8, page 18; Fig. 3).

Claims 6, 27, 39, '077 teaches the limitation of claims 1 and 34 as discussed above. '077 further teaches that wherein the switch means comprises a plurality of switches enabling connection of the desired one of the plurality of rechargeable batteries to the first conversion means and of the selected one of the batteries to the output circuit (i.e., a plurality of switches is implicitly taught in order for the switching

means to perform the disclosed functions)(e.g., see lines 1-8, 26-29, page 12; lines 9-12, page 18; Fig. 3).

Claims 7, 40, '077 teaches the limitation of claims 1 and 34 as discussed above. '077 further teaches that a control unit (i.e., a control unit for controlling the switch means for performing the functions is implicitly taught) configured to control the switch means to either enable the charging of the desired one of the plurality of batteries and the discharging of the selected one of the batteries based on the state of charge of the plurality of batteries (e.g., see lines 1-8, 26-29, 30-36, page 12; lines 12-23, page 13; Fig. 3).

For claim 22, 53, '077 teaches the limitation of claims 1 and 34 as discussed above. '077 further teaches that the first conversion means including an inductive means (e.g., see lines 1-8, page 12), one or more switches (e.g., the switch means) and a switch control unit (i.e., switching control unit is implicitly taught in order for the switch means to perform the disclosed function) to enable charging of the desired one of the plurality of the rechargeable batteries (e.g., see lines 1-8, 26-29, 30-36, page 12; lines 12-23, page 13; Fig. 3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 3, 19, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Single (AU200176077, hereinafter '077), in view of Miwa et al. (JP04334935, hereinafter '935).

Claims 3, 36, '077 teaches the limitations of claims 1, 34 as discussed above. '077 does not explicitly disclose that wherein the power management system further comprises: second conversion means connected between the output circuit and the switch means for converting the voltage of the selected one of the batteries to a voltage for use by the output circuit thereby discharging the selected one of the batteries.

'935 teaches a power management system further comprises:
a second conversion means (e.g., 6, Fig .1) connected between the output circuit and the switch means for converting the voltage of the selected one or more batteries to a voltage for use by the output circuit thereby discharging the selected one or more batteries (Abstract; Fig. 1). Therefore, it whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the power management system to include the second conversion means (e.g., 6, Fig .1) connected between the output circuit and the switch means for converting the voltage of the selected one or more batteries to a voltage for use by the output circuit thereby discharging the selected one or more batteries, as disclosed in '935, because it converts the selected battery voltage to the voltage required by load circuit (e.g., see Abstract; Fig. 1).

Claim 19, '077 and '935 teaches the limitation of claim 3 as discussed above.

'077 does not explicitly disclose that wherein the second conversion means enables discharging of the selected one of the batteries such that charge in the selected one of the batteries is forwarded to the output circuit.

'935 further teaches that wherein the second conversion means enables discharging of the selected one or more batteries such that charge in the selected one or more batteries is forwarded to the output circuit (e.g., see Abstract; Fig. 1). '935 reads the same obviousness as discussed in claims 3, 36 rejections above.

10. Claims 8, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Single (AU200176077, hereinafter '077), in view of Maki (US Patent No. 6541980, hereinafter '980).

For claim 8, 41, '077 teach the limitations of claims 7, 40 as discussed above.

'077 does not explicitly teach that a multiplexer means is used to select one terminal of each rechargeable battery in the plurality of rechargeable batteries for to be forwarded to an A/D converter.

However, in an analogous art, '980 teaches a battery voltage monitoring device (Abstract; Fig. 1 and corresponding text) which uses multiplexer means (e.g., 1 or 2) to select one terminal of each rechargeable battery in the plurality of rechargeable batteries for the voltage to be measured by an A/D converter (5). Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the multiplexer means to select one terminal of each rechargeable battery in the plurality of rechargeable batteries of '077, as taught by '980, in order to have measured the selected voltage of the batteries using the A/D converter, because '980 has demonstrated that it is a preferred method in order to have measured the selected battery voltage from multiple of batteries using an a/d converter.

11. Claims 9, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Single (AU200176077, hereinafter '077), in view of Maki (US Patent No. 6541980, hereinafter '980), further in view of Nanno et al. (US Patent No. 5553294, hereinafter '294)

For claim 9, 42, '077, and '980 teach the claimed invention as discussed above except for a shunt impedance means being connected to the other terminal of each battery in the plurality of rechargeable batteries to measure the charge current of each battery, represented as a voltage drop across the shunt impedance means

'294 further teaches that a shunt impedance means connected to the other terminal of each battery in the plurality of rechargeable batteries to measure the charge current of each battery, represented as a voltage drop across the shunt impedance means e.g., the input impedance of 312) (Fig. 2 and corresponding text). '294 further teaches that the charging current can be determined. Therefore, the subject matter as whole would have be obvious to one of ordinary in art the have used the shunt impedance of '294 in the device of '077 and 980, as taught by '294, in order to determined the charging current since '294 has demonstrated that it is a suitable method to determine the battery charging current.

12. Claim 23, 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over (AU200176077, hereinafter '077), in view of Miwa et al. (JP04334935, hereinafter '935), further in view of Kernahan et al. (US PG Pub No. 20040095020, hereinafter '020).

For claim 23, 54, '077 and '935 teach the claimed invention as discussed above except for the second conversion means including an inductive means, one or more

switches and a switch control unit to enable discharging of the selected one of the battery. '020 discloses a power converter circuit with an inductive means (e.g., the inductor 15, Fig. 1) one or more switches (e.g., 13a, 13b, Fig. 1) and a switch control unit (e.g., 11, Fig. 1) to enable for converting the battery (e.g., 10, Fig. 1) voltage to a regulated output voltage for supplying power to load (e.g., see Fig. 1). Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the DC/DC converter circuit of '020 as the second conversion circuit of '077 and '935, as demonstrated by '020, in order to have converted the battery voltage to the output voltage for supplying power to the load, because '020 has demonstrated that it is a suitable method in order to have converted battery voltage to output voltage for supplying power to load.

Allowable Subject Matter

13. Claims 10-11, 14-15, 28-33, 43-51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is an examiner's statement of reasons for allowance:

For claims 10-11, 14-15, 43-51, the prior art does not disclose or suggest, primarily, the shunt impedance means is connected in parallel to a shunt switch to short circuit the shunt impedance means when the shunt impedance is not in use.

For claims 28-33, the prior art does not disclose or suggest, primarily, the charging of the desired one of the plurality of batteries and the discharging of the

selected one of the batteries based on information on each of the rechargeable batteries stored in a register.

Response to Argument

15. Applicant's arguments filed 3/12/2010 have been fully considered but are moot in view of the new ground of rejections.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUE ZHANG whose telephone number is (571)270-1263. The examiner can normally be reached on M-Th 7:30-5:00PM EST, Other F 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Lewis can be reached on 571-272-1838. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jue Zhang/
Examiner, Art Unit 2838
June 6, 2010